REMARKS

Claims 1-12 are pending. Claims 4, 6, and 7 have been canceled. Claims 1 and 5 have been amended. No new matter has been added by way of this amendment. Reconsideration of the application is respectfully requested.

Claim 1 stands rejected under 35 U.S.C. §112, ¶ 2, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. According to the Examiner, "claim 1 fails to define how many fiber types are required" and the intended meaning of the phrase "microfibers extending from the primary fibers" cannot be determined. In response to this rejection, Applicants have amended claim 1 in a manner that is believed to address the specific rejection. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Claims 1-5, and 7-12 stand rejected under 35 U.S.C. 103(a) as being unpatentable over GB No. 687041 to *American Viscose Corporation*, while claim 6 has been rejected as being unpatentable over the same reference in view of U.S. Patent No. 5,292,581 to *Viazmensky* et al. These rejections are respectfully traversed.

The present invention is an improvement over the invention disclosed in co-pending application serial number 09/491,621. The claims cited therein have since been allowed in a Notice of Allowance dated July 29, 2002. Accordingly for the reason cited therein, the amended claims of the present application are also patentable over the cited prior art.

Claim 1 has been amended such that the content (% by mass) of the fibrillated rayon, the kind of other fibers added to the sheet, the length of the range of the primary fibers, and the like are limited. Support for the limitation with respect to the content of fibrillated rayon may be found at page 21, lines 10 thru 20 of the specification as filed. Here, the preferred upper limit of the length of the primary fibers in such a case is established to be at most 6mm. The preferred range of the length of the primary fibers may also be found at page 12, lines 7-10 of the specification. The range of the length of the primary fibers at a peak of mass distribution thereof has been changed to 2.5 to 6.5 mm. Accordingly, the amount of fibers has also been amended in accordance with the description referred to in Table 1 (see page 16, line 1 to page 18, line 20 of the specification). Applicants respectfully assert that the addition of non-fibrillated rayon and pulp to the sheet can be readily found throughout the specification, without undue searching. Accordingly, no new matter has been entered to the application.

At the time the invention was made, the inventors considered that a large amount of the fibrillated rayon could be contained in a product, e.g., up to 100 % by mass. However, with the passage of time, it was found that the content of the fibrillated rayon in the actual product should be kept relatively low due to the high cost of the fibrillated rayon. Therefore, independent claim 1 has been amended to limit the content of the fibrillated rayon to a level that is as low as possible, consistent with the description found in the specification.

As set forth on page 3 of the Office Action, the Examiner states that:

> "AVC is concerned with the creation of a water-decomposable fibrous sheet used as a wipe or toilet tissue (p. 31, lines 114-1120). Said sheet comprising at least 3% fibrillated rayon (p. 3, lies 46-50) mixed with non-fibrillated fibers (p. 3, lines 70-74). The examiner notes that all fibers have an predetermined length. Said

fibrillated fibers are microfibers (p. 3, lines 105-107). Said microfibers are entangled with the non-fibrillated fibers."

However, Applicants respectfully submit that this reference fails to teach the use of fibrillated rayon in a water-decomposable sheet. Moreover, in addition to the fibrillated rayon, the water-decomposable sheet of the present invention contains both the non-fibrillated rayon and the pulp. The combination of the fibrillated rayon, non-fibrillated rayon and pulp in the water-decomposable sheet is not taught by the AVC reference. Further, the content of the fibrillated rayon as low as 3 to 20% by mass as claimed is an usual combination that is not readily found in the art.

U.S Patent No. 5,292,581 to *Viazmensky* et al. is directed to a nonwoven fibrous web material having a sufficient level of strength when wet such that it is suitable for use as a wet wipe, yet is capable of disintegrating within a septic system after a brief period of time (see *Abs.*). However, this patent fails to cure the deficiency of the prior reference. Specifically, *Viazmensky* et al. also fails to teach the use of fibrillated rayon in a water-decomposable sheet. In view of the differences between the present invention and the cited references, reconsideration and withdrawal of the rejections are respectively requested.

As for claim 5, the Examiner has taken Official Notice "that it is common and well known to use multi-ply toilet paper ... Such a modification would have been motivated by the desire to increase the comfort and durability of the paper."

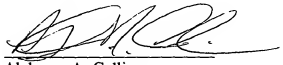
With respect to this rejection, Applicants respectfully note that the claimed multi-layer structure has an effect that the amount of fibrillated rayon can be reduced when compared with the case where the sheet is of a single-layer structure containing uniformly dispersed fibrillated rayon (see Examples E-1, E-2). As stated previously, for reasons of cost, it is preferable to keep the amount of fibrillated rayon as low as possible. In view of this, Applicants respectfully assert that such a feature is not common or well known in multi-ply toilet paper. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

In light of the patentability of amended independent claim 1 and amended dependent claim 5, for the reasons above, dependent claims 2-3, and 8-12 are patentable over the prior art.

In light of the foregoing remarks, this application should be in condition for allowance. Early passage of this case to issue is respectfully requested. However, if there are any questions regarding this Response, or the application in general, a telephone call to the undersigned would be appreciated since this would expedite the prosecution of the application for all concerned.

Respectfully submitted,

Date: March 5, 2003



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COMPLETE SET OF PENDING CLAIMS

1. (Amended) A water-decomposable fibrous sheet comprising from 3 to 20 % by mass of fibrillated rayon comprising primary fibers and microfibers extending therefrom, and a balance being non-fibrillated rayon and pulp having a length of at most 10 mm,

wherein primary fibers have a length in a range of from 2.5 to 6.5 mm at a peak of mass distribution thereof, microfibers having a length of at most 1 mm account for from 0.1 to 50% by mass of a self-weight of the fibrillated rayon, and the microfibers are hydroentangled with each other or with other fibers, and wherein

a surface friction resistance of the fibrous sheet when dry, measured according to an abrasion resistance test method of JIS P-8136, is at least three rubbing cycles.

2. The water-decomposable fibrous sheet as claimed in claim 1, of which the surface friction resistance of the fibrous sheet in wet is at least three rubbing cycles.

3. The water-decomposable fibrous sheet as claimed in claim 1, of which the surface is pressed under heat so that the microfibers of the fibrillated rayon in the surface are hydrogen-bonded to at least either of other microfibers and other fibers therein.

5. (Amended) The water-decomposable fibrous sheet as claimed in claim 1, wherein the fibrous sheet has a multi-layered structure including a layer not containing the fibrillated rayon.

8. The water-decomposable fibrous sheet as claimed in claim 1, wherein the degree of fineness of the fibrillated rayon falls between 1.1 and 1.9 dtex.

9. The water-decomposable fibrous sheet as claimed in claim 1, wherein the weight of the fibers falls between 20 and 100 g/m^2.

10. The water-decomposable fibrous sheet as claimed in claim 1, of which the decomposability in water, measured according to JIS P-4501, is at most 200 seconds.

11. The water-decomposable fibrous sheet as claimed in claim 1, of which the wet strength is at least 1.1 N/25 mm.

12. The water-decomposable fibrous sheet as claimed in claim 1, of which the dry strength is at least 3.4 N/25 mm.

13. A method for producing a water-decomposable fibrous sheet, comprising:

(A) a step of sheeting fibers into a fibrous web, in which the fibers contain fibrillated rayon that comprises primary fibers having a predetermined fiber length and microfibers extending from the primary fibers and has a degree of beating of at most 700 cc, and

(B) a step of pressing the fibrous wet under heat while the surface of the fibrous web is wetted with water, whereby the microfibers existing in the surface are hydrogen-bonded to at least either of other microfibers and other fibers therein.

14. The method for producing a water-decomposable fibrous sheet as claimed in claim 13, which includes a step (C) of processing the fibrous web through water-jetting treatment between the step (A) and the step (B).

File No. 2309/0H444

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Naohito TAKEUCHI et al.

Serial No.: 09/627,013 Group Art Unit: 1771

Confirmation No.: 9726

Filed: July 27, 2000 Examiner: PRATT, Christopher C.

For: WATER-DECOMPOSABLE FIBROUS SHEET OF HIGH RESISTANCE TO SURFACE FRICTION, AND METHOD FOR PRODUCING IT

MARK-UP FOR AMENDMENT OF MARCH 5, 2003 PURSUANT TO 37 C.F.R. §1.121

Box NON FEE
Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

IN THE CLAIMS:

1. (Amended) A water-decomposable fibrous sheet comprising [fibers containing at least 3% by mass of fibrillated rayon, the fibrillated rayon having a degree of beating of at most

700 cc and having primary fibers of a predetermined fiber length and microfibers extending from the primary fibers;

wherein the microfibers are entangled with at least either of other microfibers and other fibers therein]

from 3 to 20 % by mass of fibrillated rayon comprising primary fibers and microfibers extending therefrom, and a balance being non-fibrillated rayon and pulp having a length of at most 10 mm,

wherein primary fibers have a length in a range of from 2.5 to 6.5 mm at a peak of mass distribution thereof, microfibers having a length of at most 1 mm account for from 0.1 to 50 % by mass of a self-weight of the fibrillated rayon, and the microfibers are hydroentangled with each other or with other fibers, and wherein

[the] a surface friction resistance of the fibrous sheet [in] when dry, measured according to [the] an abrasion resistance test method of JIS P-8136, is at least three rubbing cycles.

5. (Amended) The water-decomposable fibrous sheet as claimed in claim 1, [which has] wherein the fibrous sheet has a multi-layered structure including a layer not containing the fibrillated rayon [in at least one of two surface layers].

Respectfully submitted,

Date: March 5, 2003

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